CLAIMS

1. Process for the treatment of production crude comprising the following stages:
   (a) separation of the crude into two phases, i.e. gas and degassed emulsion, and
   (b) separation of the said degassed emulsion into water and oil.

2. Process according to claim 1, in which stage (b) is implemented without recovery of a flow from the emulsion interface.

3. Process according to claim 1 or 2, in which stage (b) comprises the substage (b1) of washing the said emulsion with water at the oil/water interface.

4. Process according to claim 1 or 2, in which stage (b) comprises substage (b2) of stripping with gas, preferably an acid gas.

5. Process according to any of claims 1 to 3, in which stage (b) comprises the substage (b3) of washing the said emulsion with water at the gas/oil interface.

6. Process according to any of claims 1 to 4, also comprising a stage (c) of settling the oil originating from stage (b).

7. Process according to claim 1, in which stage (b) includes a settling operation.

8. Process according to any of claims 1 to 6, in which stage (b) comprises a stage of passing the degassed emulsion to the bottom of a washing vessel.

9. Process according to claim 8, which comprises using a water leg comprised from 3 to 15 meters, preferably from 4 to 12 meters.

10. Process according to claim 8 or 9, in which the degassed emulsion has a water content from 15 to 35 vol%.

11. Process according to any of claims 1 to 10, in which stage (a) comprises a substage (a1) of high or medium pressure separation and a stage (a2) of low pressure separation.

12. Process according to any of claims 1 to 11, in which stage (a) is implemented at a temperature of between 35 and 75°C, advantageously between 45 and 65°C, especially between 45 and 50°C.

13. Process according to any of claims 1 to 12, in which the said stage (a) is implemented during a residence time of less than 10 minutes, preferably of between 3 and 8 minutes.

14. Process according to any of claims 1 to 13, in which stage (b) is implemented during a residence time of between 4 and 24 hours.

15. Process according to any of claims 1 to 14, in which the production crude is a complex crude, preferably a naphthenic crude.

16. Apparatus for the treatment of production crude comprising:

(a) a unit (102; 108) for separation of the crude into two phases, gas and degassed emulsion, and

(b) a vessel (112) for separating the said degassed emulsion into water and oil.

17. Apparatus according to claim 16, in which the separating tank (112) does not include recovery of a flow from the emulsion interface.

18. Apparatus according to claim 16 or 17, in which the vessel (112) comprises a spray or water distribution system (115) for washing the said emulsion with water at the oil/water interface.

19. Apparatus according to claim 18, in which the spray or wash water distribution system (115) comprises a plurality of pipes (121a, 121b, 121c) connected together in the form of a manifold.

20. Apparatus according to any one of claims 12 to 19, also comprising a distributor (116) for stripping gas at the bottom of the vessel (112).

21. Apparatus according to any of claims 16 to 20, also comprising a spray or water distribution system (117) for washing the said emulsion with water at the gas/oil interface.

22. Apparatus according to any of claims 16 to 21, also comprising a settler (114) downstream from the vessel (112).

23. Apparatus according to claim 16, in which said vessel comprises a settler for settling the degassed emulsion.

24. Apparatus according to any of claims 16 to 21, in which said vessel comprises a feed (111) for said degassed emulsion at the bottom of said vessel.

25. Apparatus according to claim 24, which comprises a water leg from 3 to 15 meters, preferably from 4 to 12 meters.

26. Apparatus according to claim 24 or 25, comprising a water make-up device upstream of the feed (111).

27. Apparatus according to any of claims 16 to 26, comprising a high or medium pressure separator (102) and a low pressure separator (108).

28. Apparatus according to any of claims 16 to 27, for implementing the process according to any of claims 1 to 15.

29. Ship or barge comprising the apparatus according to any of claims 16 to 28, the separation unit (102; 108) being on the topsides while the vessel (112) or settler is in the hull.

30. Process for the separation of a water-in-oil hydrocarbon emulsion comprising the following stages:

(i) creation of an oil/water interface,

(ii) washing the said emulsion with water at the oil/water interface, and

(iii) recovery of a flow of oil and a flow of water.

31. Process according to claim 30, in which stage (iii) is implemented without recovering a flow from the emulsion interface.

32. Process according to claim 30 or 31, also comprising a stage (iv) of stripping with gas, preferably an acid gas.

33. Process according to any of claims 30 to 32, also comprising a stage (v) of washing the said emulsion at the gas/oil interface.

34. Process according to any of claims 30 to 33, also comprising a stage (vi) of settling the fluid from stage (iii).

35. Process according to any of claims 31 to 35, in which stage (i) comprises a stage of passing the degassed emulsion to the bottom of a washing vessel.

36. Process according to claim 35, which comprises using a water leg comprised from 3 to 15 meters, preferably from 4 to 12 meters.

37. Process according to claim 35 or 36, in which the degassed emulsion has a water content from 15 to 35 vol%.

38. Process for the separation of a water-in-oil hydrocarbon emulsion comprising the following stages:

(i) passing the degassed emulsion to the bottom of a washing vessel, and

(ii) recovery of a flow of oil and a flow of water.

39. Process according to claim 38, which comprises using a water leg comprised from 3 to 15 meters, preferably from 4 to 12 meters.

40. Process according to claim 38 or 39, in which the degassed emulsion has a water content from 15 to 35 vol%.

41. Process according to any one of claims 38 to 40, in which stage (ii) is implemented without recovering a flow from the emulsion interface.

42. Process according to any of claims 38 to 41, also comprising a stage (vi) of settling the fluid from stage (ii).

43. Apparatus for the separation of a water-in-oil hydrocarbon emulsion comprising a vessel (112) fitted with a spray or water distribution system (115) for washing the said emulsion with water at the oil/water interface.

44. Apparatus according to claim 43, in which the spray or wash water distribution system (115) comprises a plurality of pipes (121a, 121b, 121c) connected together in a manifold arrangement.

45. Apparatus according to claim 43 or 44, also comprising a distributor (116) for stripping gas at the bottom of the vessel (112).

46. Apparatus according to any of claims 43 to 45, also comprising a spray or water distribution system (117) for washing the said emulsion with water at the gas/oil interface.

47. Apparatus according to any of claims 43 to 46, also comprising a settler (114) downstream from the vessel (112).

48. Apparatus according to any of claims 43 to 47, also comprising a vessel (112) fitted with a feed (111) for said emulsion at the bottom of said vessel.

49. Apparatus for the separation of a water-in-oil hydrocarbon emulsion comprising a vessel (112) fitted with a feed (111) for said emulsion at the bottom of said vessel, and further comprising downstream of said vessel (112) a settler (114).

50. Apparatus according to claim 49, which comprises a water leg from 3 to 15 meters, preferably from 4 to 12 meters.

51. Apparatus according to claim 49 or 50, comprising a water make-up device upstream of the feed (111).

52. Apparatus according to any of claims 43 to 48 for implementing the process according to one of claims 30 to 37.

53. Apparatus according to any of claims 49 to 51 for implementing the process according to claim 42.

54. Ship or barge comprising the apparatus according to any of claims 43 to 53 in the hull.